

as *G. splendens*. Although more than 5,000,000 cells per liter were present in the water sample there was no apparent damage to fish life.

ARTHROPODA

Crustacea

3. *Acartia tonsa* Dana, 1849, and *Labidocera aestiva* Wheeler, 1900.

Two commercial fishermen, Mr. Ross Black and Mr. Herman Reisler, Sarasota, (personal communication) reported noting a streak of reddish brown discolored water in the Gulf of Mexico one and one-half miles west of Big Sarasota Pass at 11:00 A.M., 29 March. It was approximately one mile in width and extended towards the beach. Dead fish were not present in the area and mackerel were frequently seen jumping from the water by Messrs. Black and Reisler. I examined a water sample collected by Messrs. Black and Reisler. It contained more than 350,000 copepods per liter of the species identified as *A. tonsa*. This identification was confirmed by Dr. Thomas E. Bowman, United States National Museum, Washington, D. C., who identified a second species of copepod from the water sample as *L. aestiva*. This second species was much less abundant than *A. tonsa*.—ROBERT F. HUTTON, Florida State Board of Conservation Marine Laboratory. St. Petersburg, Florida. Quart. Journ. Fla. Acad. Sci., 23(2), 1960

A NOTE ON THE OCCURRENCE OF THE SHRIMP, *PENAEUS BRASILIENSIS* LATREILLE, IN BISCAYNE BAY, FLORIDA¹

In recent reports on shrimp investigations of Biscayne Bay, Sibenaler (1953, Fla. St. Bd. Conserv., Tech. Ser. No. 6: 1-20); Higman (1956, Fla. St. Bd. Conserv., Tech. Ser. No. 16: 1-23); Costello (1958, Gulf Fishery Investigations, Annual Report, U. S. Fish and Wildlife Service: 32-35); and Costello and Allen (1959, Gulf Fishery Investigations, Annual Report, U. S. Fish and Wildlife Service: 13-18) mention only one species, *Penaeus duorarum* in this area.

However, three samples of shrimp obtained from Biscayne Bay showed two closely related grooved species, *P. duorarum* and *P. brasiliensis*. No authentic previous record of the occurrence of *P. brasiliensis* from this area is evident in the literature. Burkenroad (1934, Bull. Amer. Mus. Nat. Hist. 68(2): 61-143) confined the grooved North and South American specimens of *Penaeus* under the name of *P. brasiliensis* and reported a wide distribution for this species ranging on the east coasts of the Americas from about 41° north to 32° south latitude.

Burkenroad's (1939, Bull. Bingham Oceanog. Coll. 6(art. 6): 1-62) further studies of the North American specimens of Division II of *Penaeus* established three distinct species from this *P. brasiliensis* complex: *P. aztecus* (Form A) distribution Gulf of Mexico and Atlantic North America; *P. duorarum* (Form A) distribution Gulf of Mexico, Atlantic North America, and Bermuda; and *P. brasiliensis*, distribution Atlantic North America (based on one specimen

¹ Contribution No. 47, Fla. St. Bd. Conserv. Mar. Lab.

from offshore Cape Hatteras), and Bermuda. In addition, Burkenroad (op. cit.: 1-62) recognized several well-defined sub-species or forms of the above three species which occur in the Caribbean, South American Atlantic, and the west coast of Africa.

The first two Biscayne Bay samples (2 December 1960 and 2 February 1960) contained mostly *P. duorarum*. The presence of only a few adult specimens of *P. brasiliensis* in the two samples suggested the possibility that these individuals had migrated into the bay from the Atlantic.

The third sample (10 July 1960) however, contained juvenile, sub-adult, and adult specimens of both *P. brasiliensis* and *P. duorarum*. Many of the adult females of *P. duorarum*, and one adult female of *P. brasiliensis*, were found impregnated. The presence of juveniles of both species in this sample indicate that there are two grooved penaeid species indigenous to Biscayne Bay.

P. duorarum and *P. brasiliensis* of Biscayne Bay are so closely related that it is difficult to distinguish the two species by a cursory examination. Most of the specimens of both species bore abdominal spots and all specimens were brown in color. The dorsal grooves of the sixth abdominal somite of *P. brasiliensis* resemble the narrow channel-like grooves of *P. duorarum* (Form A) but in some instances, the grooves of *P. brasiliensis* were found completely closed.

In contrast, Cuban specimens of *P. brasiliensis* showed wider grooves similar to those of *P. aztecus* (Form A). This variation of the abdominal grooves of the southern and northern specimens of *P. brasiliensis* was pointed out by Burkenroad (op. cit.: 1-62).

The petasmata of the adult males and the thelyca of the adult females of the two species (described and figured by Burkenroad, op. cit.: 1-62) can be distinguished with the unaided eye or with a hand lens. However, characteristics of the sex organs of the juveniles and sub-adults of the two species can only be differentiated microscopically.

I wish to extend my thanks to Conservation Agent William Saunderson, Mr. Robert Still, commercial shrimper, and Mr. Thomas Costello, Jr., U. S. Fish and Wildlife Service, for obtaining the shrimp samples.—BONNIE ELDBRED, Florida State Board of Conservation Marine Laboratory.

Quart. Journ. Fla. Acad. Sci., 23(2), 1960

SPEAR OF SWORDFISH, *XIPHIAS GLADIUS* LINNAEUS,
IMBEDDED IN A SILK SHARK, *EULAMIA FLORIDANA*
(SCHROEDER AND SPRINGER)

On April 5, 1958, I caught an eight-foot silk shark, *Eulamia floridana* (Schroeder and Springer), about 15 miles southeast of Lower Matecumbe Key in the Florida Keys. This is nearly over the 100 fathom contour near the western edge of the Florida Current. The capture of this particular shark is of interest since a portion of a swordfish spear was embedded in its back. The fragment, nearly 176 mm. in length, projected about two inches. Apparently the spear entered at an angle, penetrated completely through the shark, and broke off, leaving the broken posterior end of the fragment halfway through the shark. Although the wound had not healed, the injury probably was not